

PATENT

Atty. Dkt. No. APPW005750/CPI/L/B/PJS

**REMARKS**

This is intended as a full and complete response to the Final Office Action dated November 30, 2005, having a shortened statutory period for response set to expire on February 28, 2006. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-6 remain pending in the application and are shown above. Claims 1-6 are rejected by the Examiner. Reconsideration of the rejected claims is requested for reasons presented below.

Claims 1 and 6 are amended. Claim 1 is amended to move part of the preamble into the body of the claim. Claim 6 is rewritten into independent form.

Claims 1, 5, and 6 stand rejected under 35 USC § 103(a) as being unpatentable over *Mori, et al.* (U.S. Patent No. 6,673,262) in view of *Shang, et al.* (U.S. Patent No. 5,788,778). Applicant respectfully traverses the rejection. *Mori* describes a cleaning gas at 10 to 700°C (column 4, line 54 and claim 7) and a gas distribution plate at 40°C during film deposition (column 7, line 37). This does not suggest that the shower head is at a higher temperature during cleaning than when forming a film on a substrate. *Mori* does not even indicate that the cleaning gas enters the chamber through a gas distribution plate. *Shang* adds nothing to *Mori* regarding temperatures of the shower head during deposition and cleaning.

*Mori* and *Shang*, alone or in combination, do not teach, show, or suggest introducing a film forming gas into a chamber via a shower head, forming a film on the substrate with the shower head at a first temperature, activating a cleaning gas including a compound containing fluorine atoms by exposure to microwaves; introducing the cleaning gas into the chamber; raising the temperature of the shower head to a second temperature greater than the first temperature; and then removing a deposit comprising tungsten and silicon, as recited in claim 1, and claim 5 dependent thereon.

Also, *Mori* and *Shang*, alone or in combination, do not teach, show, or suggest introducing a film forming gas into a chamber via a shower head wherein the film forming gas comprises a compound containing tungsten atoms, forming a film on the substrate with the shower head at a first temperature, activating a cleaning gas

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including a compound containing fluorine atoms by exposure to microwaves, introducing the cleaning gas into a chamber, raising the temperature of the shower head to a second temperature greater than the first temperature, wherein the temperature of the shower head is raised to about 70°C or above; and then removing a deposit comprising tungsten and silicon, as recited in claim 6. Withdrawal of the rejection is respectfully requested.

Claims 2-4 stand rejected under 35 USC § 103(a) as being unpatentable over the applied prior as applied to claim 1 above, and further in view of *Matsuse, et al.* (U.S. Patent No. 5,647,945). Applicant respectfully traverses the rejection. *Mori* describes a cleaning gas at 10 to 700°C (column 4, line 54 and claim 7) and a gas distribution plate at 40°C during film deposition (column 7, line 37). This does not suggest that the showerhead is at a higher temperature during cleaning than when forming a film on a substrate. *Mori* does not even indicate that the cleaning gas enters the chamber through a gas distribution plate. *Matsuse* teaches a high frequency power supply 28 (column 7 line 66 to column 8 line 22) and illustrates power supply 28 with a wire. A microwave can not be transmitted by a wire. *Matsuse* does not suggest that the power supply 28 is interchangeable with any other activation method. *Shang* adds nothing to *Mori* and *Matsuse* regarding temperatures of the shower head during cleaning and deposition.

*Mori*, *Shang*, and *Matsuse*, alone or in combination, do not teach, show, or suggest introducing a film forming gas into a chamber via a shower head, forming a film on the substrate with the shower head at a first temperature, activating a cleaning gas including a compound containing fluorine atoms by exposure to microwaves, introducing the cleaning gas into the chamber, raising the temperature of the shower head to a second temperature greater than the first temperature, and then removing a deposit comprising tungsten and silicon, as recited in claim 1, and claims 2-4 dependent thereon.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

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Having addressed all issues set out in the Final Office Action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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